

628  
C49ar  
1962, pt.1

STATE WATER SURVEY DIVISION  
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1853

*Anniversary  
Issue*

DEPARTMENT  
OF WATER  
AND SEWERS

1962

ANNUAL REPORT



CITY OF CHICAGO — RICHARD J. DALEY, Mayor



The Honorable Richard J. Daley, Mayor  
The Honorable Members of the City Council  
City of Chicago, Illinois.

Gentlemen:

The year 1962 completed a decade of operation for the Department of Water and Sewers—a ten-year period in which many improvements have been made in the Water Works System and the Sewer System operations of the City of Chicago, both in plant facilities and methods. The year 1962 added its full share to the good work done during the decade.

Illustrative of the improvement in the Chicago Water Works System is the fact that the system's ability to furnish water has been increased by 100 per cent.

During the past decade, the Department of Water and Sewers has made substantial progress in the improvement of the water supply system and the sewerage system.

A little over 429 miles of sewerage have been installed during the last decade. At the end of 1962, the city had 1,100 miles of sewerage.

The Water Works System has served 19 million persons during the year. The system has served by the system day at 3:00 p.m. the maximum daily demand.

Total Water Works System charges, including rental charges, paid by the city, were \$6,683,567 greater than in 1961.

We wish to express our appreciation to the people of Chicago for the support and cooperation given to the Department of Water and Sewers.

And finally, we wish to express our appreciation to the City Council for its support and help which has contributed so greatly to the progress made by this Department since its establishment. You may be sure that we will continue to strive to improve these services to the public—services vital to the health, safety, security, prosperity and well-being of the citizens of our great metropolitan community.

Respectfully submitted,  
JAMES W. JARDINE  
Commissioner

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DA	628 C49ar 1962, pt.1 07081003	City of Chicago, Department ANNUAL REPORT, DEPARTMENT OF WATER AND SEWERS, CITY OF CHICAGO.
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City of Chicago, Department  
ANNUAL REPORT,  
DEPARTMENT OF WATER  
AND SEWERS, CITY OF  
CHICAGO.

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progress . . .





FROM BUCKINGHAM PALACE TO BUCKINGHAM FOUNTAIN—Queen Elizabeth, first reigning British monarch to set foot in Chicago, is welcomed to the city by His Honor Mayor Richard J. Daley. The Royal greeting, which took place in front of Buckingham Memorial Fountain in 1959, was a momentous occasion in Chicago.



1953

1962

## THE CHICAGO CITY COUNCIL

**RICHARD J. DALEY**

Mayor

**DORSEY R. CROWE (a)**

and

**PAUL T. CORCORAN (b)**

President Pro Tem

**JOHN C. MARCIN**  
City Clerk

**MORTON GORDON**  
Deputy City Clerk

### ALDERMEN

#### Ward

1. John D'Arco
2. William H. Harvey
3. Ralph H. Metcalfe
4. Claude W. B. Holman
5. Leon M. Despres
6. Robert H. Miller
7. Nicholas J. Bohling
8. James A. Condon
9. Dominic J. Lupo
10. Emil V. Pacini
11. Stanley J. Nowakowski
12. Arthur V. Zelezinski
13. John E. Egan (c)

#### Ward

14. Joseph P. Burke
15. Joseph J. Kraska
16. Paul M. Sheridan
17. Arthur A. Slight
18. James C. Murray
19. Thomas F. Fitzpatrick
20. Kenneth E. Campbell
21. Charles S. Bonk (d)
22. Otto F. Janousek
23. George J. Tourek
24. Benjamin F. Lewis
25. Vito Marzullo

#### Ward

26. Vacancy
27. Harry L. Sain
28. Vacancy
29. Thomas F. Burke
30. Daniel J. Ronan
31. Thomas E. Keane
32. Robert J. Sulski
33. Vacancy
34. Rex Sande
35. Casimir C. Laskowski
36. Robert L. Massey
37. Paul T. Corcoran

#### Ward

38. William J. Cullerton
39. Philip A. Shapiro
40. Vacancy
41. Harry Bell
42. Dorsey R. Crowe (a)
43. Mathias Bauler
44. Thomas Rosenberg
45. Vacancy
46. James F. Young
47. John J. Hoellen
48. Morris Hirsh
49. Paul T. Wigoda
50. Jack I. Sperling

(a) Deceased July 2, 1962 (b) Appointed August 30, 1962 (c) Resigned December 3, 1962  
(d) Resigned August 14, 1962 (e) Deceased May 26, 1962

Edward J. Padden, Chief Clerk (e)

Robert F. Campbell, Acting Chief Clerk

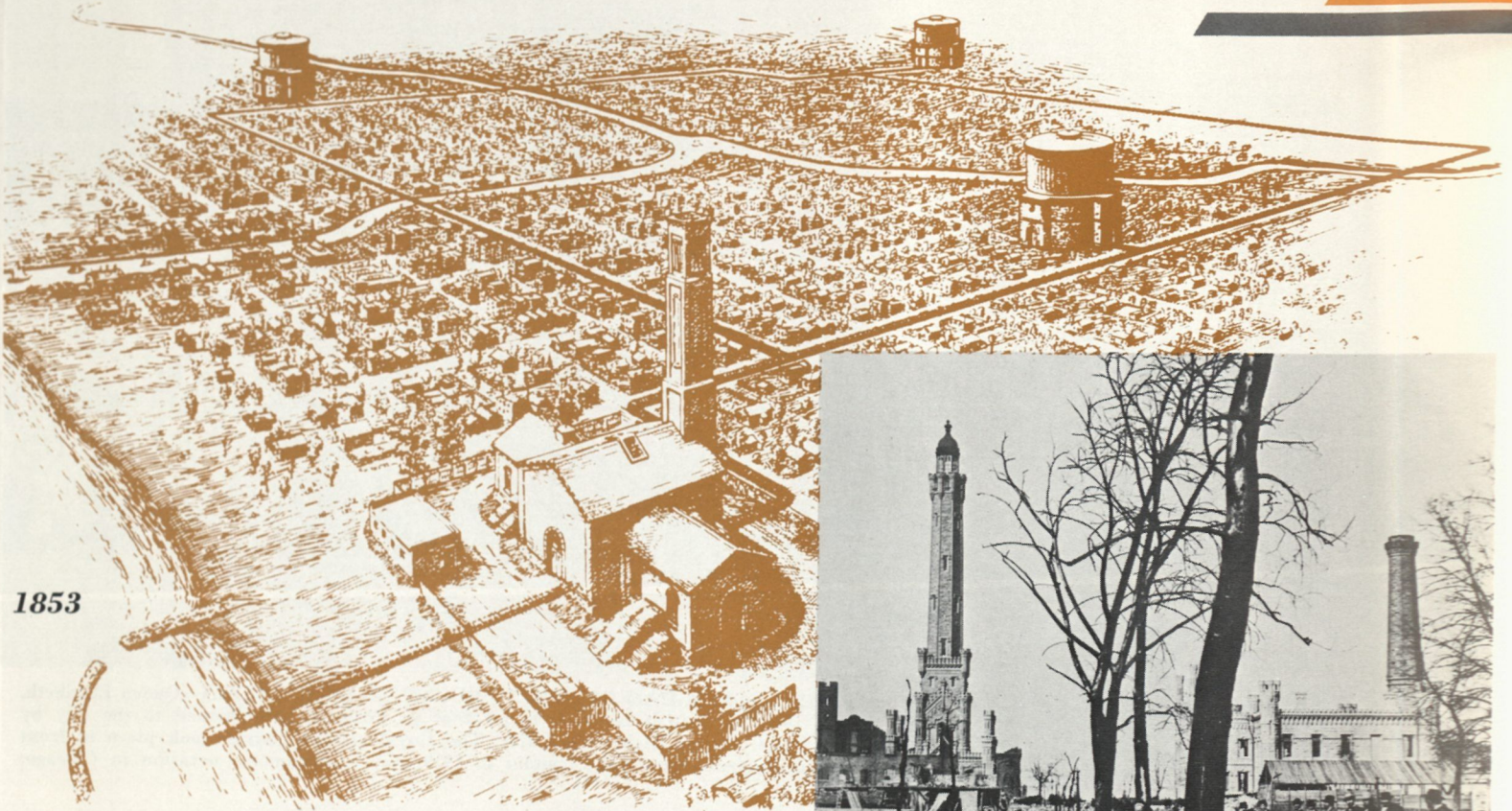
Clement J. McDermott, Assistant Sergeant-at-Arms

William F. Harrah, Sergeant-at-Arms

Michael Coletta, Assistant Sergeant-at-Arms



1853



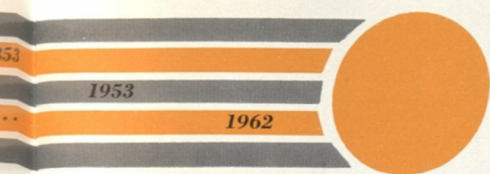
**THE OLD WATER TOWER**—a symbol of Chicago's past signifies the great faith of her early citizens in their City's future—a monument to the vision and skill of water works engineers of a pioneering era—stands today in its majesty at Michigan and Chicago Avenues on a small plot of park area across the street from the Chicago Avenue Pumping Station. Built in 1867 of hand-hewn Lemont fireproof limestone to make it imperishable, it concealed a 138-foot-high standpipe used to keep the water flowing evenly in the water mains

Only two years after its construction, on the morning of October 9, 1871, the Great Chicago Fire leveled very nearly every other building within miles, put the pumping station across the street out of service and left the City without water for eight days, but the Tower emerged unscarred.

On the day after the Fire, the Water Tower was more than merely a guide post by which the citizens hunted for the ruins of what once had been their homes. It had become overnight a memorial to the Great Fire's victims and a great City's indestructible will to endure.







## A CENTURY PLUS TEN YEARS

The year 1962 was a double anniversary in the history of the Chicago Water Works. At the end of 1962, the municipally-owned Water System was 110 years old and the Department of Water and Sewers was 10 years old having been established in Chicago's Municipal Government on January 1, 1953, to administer the affairs of both the Water Works System and the Sewer System of Chicago.

In 1853, Chicago's first municipally-owned Water System was placed in operation when a steam-driven, beam-type pump known as "Old Sally" was started. Cast iron water mains replaced the old log pipes which had been used by the Chicago Hydraulic Company, a private water utility.

Beginning in 1854, water was pumped into three reservoirs each having a capacity of 50,000 gallons. These reservoirs were located approximately within the central square mile area of Chicago at Adams and LaSalle Streets, Chicago Avenue and Sedgwick Street, and Morgan and Monroe Streets.

In 1855, the daily average pumpage was 2.17 million gallons to meet the needs of Chicago's 65,000 residents. In 1962, 10 pumping stations pumped a daily average of about 1,051 million gallons to supply a population of about 4.4 million. Further, in 1855, the cost of the Water Works was recorded at \$650,000. In 1962, it was valued at about one billion dollars.

At the close of the Civil War, the population had grown to 178,500. This growth and the rapidly-increasing pollution at the Lake front created a demand for more and safer water. By 1869, the shore intake was replaced by a wooden crib two miles out in Lake Michigan which was connected to the Chicago Avenue Pumping Station by a five-foot tunnel constructed in clay at a depth of 60 feet below the Lake level.

The old Water Tower was erected adjacent to the Chicago Avenue Pumping Station in 1867 to house a 138-foot standpipe, 3-feet in diameter, that served to equalize the pressure and minimize the pulsations of the water flow in the distribution system. The Water Tower was virtually the only structure to survive the Fire of 1871 and, although no longer in use as a part of the Water Works System, it stands today,

as a symbol of Chicago's remarkable past and the "I WILL" spirit of the City to endure and grow.

The Great Chicago Fire emphasized the need for a multi-unit water system which no single disaster could destroy. As a result, construction was begun on the network of intake cribs, tunnels, pumping stations and inter-connecting mains which make up the Water Works as we know it today.

Since the turn of the century, population growth and industrial expansion in Chicago have made ever-increasing demands on the City's Water Works. Over the years, diligent and realistic capital improvement planning for the future has provided the expanded facilities needed year after year to keep the Water Works System's capability and reliability properly geared to the demands that were placed upon it. The Chicago Water Works of 1962 embodies facilities of sufficient capacity to meet the demands that will be placed upon the System as far ahead as the year 1980.

Chicago's first filtration plant was placed in operation on September 20, 1945. This is one of the largest and most modern filter plants in the world and is the result of over 20 years of research and planning. Construction work is nearing completion on the new Central District Filtration Plant, a plant that will have a capacity of about three times that of the South District Filtration Plant.

On January 1, 1953, the Water Works System and the Sewer System operations were transferred from the Department of Public Works and consolidated in a new Department in City government to be known as the Department of Water and Sewers. During the ten years since then, the two Systems have kept pace with the steady growth of Chicago and the demands that have been placed upon them. Facilities have been modernized and methods streamlined and improved so as to give the citizens of Chicago and the 59 suburbs served by the System, a water service of dependable quantity and quality.

This has been a century and 10 years of good progress in the history of the Water Works System of Chicago—110 years of accomplishment that played an important part in the development of a great City.



## PURIFICATION

The South District Filtration Plant supplies water of high quality to the southern part of the City and adjacent suburban communities.

In general, the output of this filter plant has increased through the years to supply the peak demands of the area which has grown in population and in industry. Plans were started several years ago to provide additional structures to increase the capacity of this plant by 50 percent. During 1962, the utility lines of electric, gas and drainage for the plant were moved to new locations so that the construction of two additional settling basins and 40 more filters could be started early in 1963. Capital expenditures for these added structures will be over \$8 million.

There were several periods during the year when the raw water being supplied to the filter plant was polluted by industrial wastes discharged into the south end of the Lake. Additional chemicals were required, therefore, to eliminate the pollution so that the plant could maintain production of water of a very high quality.

During the year two new chlorine evaporators were installed to convert liquid chlorine to a gas for feeding purposes. Another development in the chlorination system was the use of one chlorinator to feed three points by using a three-way splitter for the gas supply to eductors at the places of application. The hydrated lime system was also expanded during the year for maximum plant requirements.

The filter plant produced an average of 364.23 million gallons of water per day in 1962. On the maximum day, August 24, it produced 542.4 million gallons and the maximum rate was at 648 million gallons per day at 9:00 p.m. on August 23.

Water supplied to Central and North Tunnel districts received chlorination treatment only under close 24-hour per day supervision by the Water Safety Control Section at control points located at the Lake View and Chicago Avenue Pumping Stations.

The chemical and bacteriological laboratories examined 225,447 samples of water during the year to monitor the quality of both the raw and treated water on an around-the-clock basis. Of this number, 53,924 samples of water were collected by the Water Safety Control Section from various locations throughout the distribution system as an additional check on the quality of water being furnished to the consumer.

The Water Safety Control Section also supervised the sterilization of the new 16-foot North Lake Shore Tunnel, 5.39 miles in length, which connects the new Central District Filtration Plant with the existing north side water supply tunnel at Wilson Avenue. Over 11 tons of chlorine were used for this sterilization job.

Dredging Inspectors maintained a close surveillance of dredging and dumping operations in Lake Michigan and Chicago's waterways all during the year.



Laboratory of South District Filtration Plant where continuous water analyses and tests are run to safeguard purity of Chicago's water supply. More than 225,000 samples were examined in the laboratories during 1962.

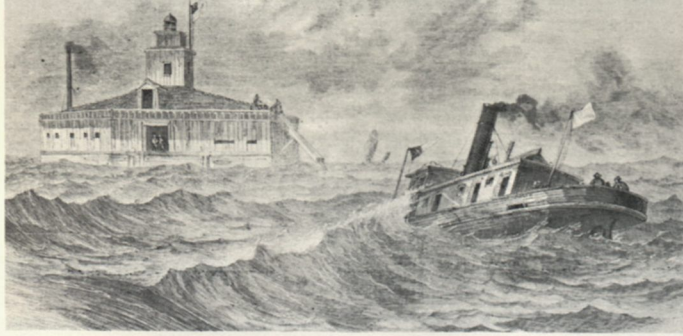


South District Filtration Plant.

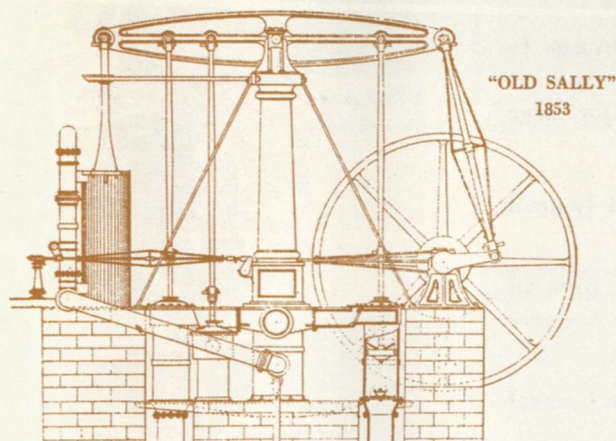
In 1933, Chicagoans lined up at South Side experimental filtration plant to be among the first to take home pure filtered water in bottles. Today, the South District Filtration Plant furnishes filtered water through the distribution system directly to the users.



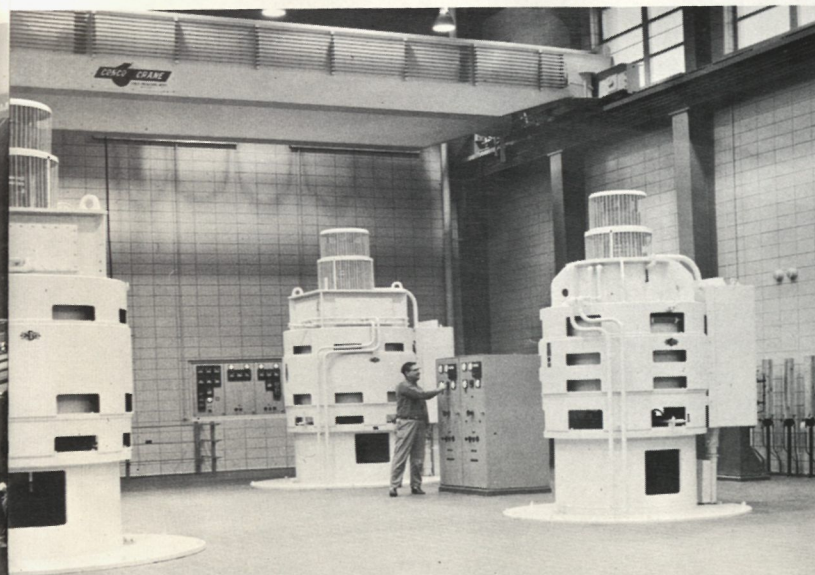




Historic engraving at top depicts supply ship approaching Chicago's first off-shore water intake. The wooden crib two miles out in Lake Michigan went into service in 1869. It was connected to the Chicago Avenue Pumping Station by a 5-foot tunnel under the bed of the Lake. Lower photo shows supply tug James J. Versluis nearing dock at Wilson Avenue Crib in December in 1962.



Pump room of Chicago's new Southwest Pumping Station which will be placed in operation early in 1963. This station will provide an additional pure water supply to residents of the Southwest Side of Chicago and 11 adjacent suburbs. Initial rated pumping capacity of the station is 175 million gallons per day.



## PUMPING

In none of the various activities of the Water Works System are the great strides of progress during the last 110 years more clearly depicted than in the pumping operations—from the one steam-driven, beam-type "Old Sally" of 1853, to 10 pumping stations with 51 pumps of varying capacity up to 80 million gallons per day in 1962.

The last decade, during which time the Pumping Station Operations Division was an integral part of the Department of Water and Sewers, has also contributed its share to the historical progress of the pumping operation. In 1953, the installed pumping capacity of the City's 12 pumping stations, two of them virtually obsolete, was 2,560 million gallons per day. Several of the stations were still operating with verticle triple expansion pumps, throw backs to the turn of the century. In 1962, 10 pumping stations with 51 modern pumping units had an installed capacity of 2,855 million gallons per day. During the 10-year period, 20 of 51 pumps and 15 of 24 boilers were replaced in the stations.

In 1953, the average daily pumpage was 1006.56 million gallons of water to a population of 4.19 million in the City and 51 suburbs, in an area of approximately 341 square miles.

In 1962, the 10 pumping stations pumped a daily average of 1050.67 million gallons of water to a population of about 4.4 million in the City and 59 suburbs, in an area of approximately 390 square miles. The maximum pumpage in 1962 for a single day was 1497.25 million gallons on August 23. A new pumping record was established at 3:00 p.m. on August 24 when the Division pumped at a rate of 1878 million gallons a day, some 37 million gallons a day higher than the previous hourly-rate record.

Construction of the new Southwest Pumping Station, located at 84th Street and Kedvale Avenue, was completed by the end of the year and is to be placed in service early in 1963 when the supply tunnel is completed. This will be the eleventh modern pumping station in the System, and will supply approximately 285,000 people on the southwest side of the City and in 12 suburbs. The Station will have an initial installed capacity of 175 million gallons per day, with space available for the installation, when needed, of two additional 50 million gallons a day pumps. When this station is placed in operation in 1963, the pumping capacity of the Division will have increased some 18 percent since the fore part of 1953.

Of the six water intake cribs, only four are still in active use, Wilson Avenue, Dever, Four Mile and Dunne. The Carter Harrison and the 68th Street Cribs have been deactivated. The Carter Harrison Crib, however, is expected to be reactivated within the next few years when the tunnel connections for the new Central District Filtration Plant are completed, then the Four Mile Crib will be deactivated.

The new North Shore Tunnel, connecting the Central District Filtration Plant with the Wilson Avenue Tunnel System, was placed in partial operation on August 1, 1962. This additional tunnel supply increased the availability of water to the Wilson Avenue Tunnel System by approximately 100 million gallons a day.



## DISTRIBUTION

There is little resemblance between the vast network of water mains which is the distribution system of today and the few feet of cast iron and wooden mains of a century plus ten years ago.

Similarly there has been a steady growth in the City's water distribution system since January of 1953 when the new Department of Water and Sewers was created. The amount of pipe in service has grown steadily each year since then. During the ten-year period, 328 miles of water main pipe of various sizes were installed, 110 miles of which ranged in size from 16 to 60 inches in diameter. During the same period, about 170 miles of water mains were removed or abandoned due to obsolescence or to accommodate public improvement projects. In 1962, there were 4,041 miles of pipe in service in the distribution system.

The year 1962 bore its share of this noteworthy progress when the Division's construction crews built over 33 miles of new water mains. Of this total, a little over ten miles were mains 16 inches in diameter and larger.

Water mains were constructed in all sectors of Chicago to improve service for thousands of users and increase the reliability and capability of the distribution system. Major large mains placed in service during 1962 included:

- ◆ 10,376 feet of 30-inch pipe in 65th Street west of Central Avenue.
- ◆ 5,922 feet of 36-inch and 1,534 feet of 24-inch pipe in Ogden Avenue between Central Park and Kenton Avenues (City Limits).
- ◆ 2,685 feet of 36-inch pipe in Roosevelt Road from Central Avenue to Austin Boulevard.
- ◆ 1,830 feet of 36-inch pipe in 18th Street from Dearborn Street to Indiana Avenue as an extension from the 48-inch feeder main in 18th Street at Dearborn Street to the 36-inch pipe in Indiana Avenue.
- ◆ 1,641 feet of 48-inch and 310 feet of 30-inch pipe in 123rd Street from Parnell Avenue to Halsted Street.

The Division was able to reduce leakage in the underground distribution system by an estimated 15 million gallons of water a day by repairing leaks discovered through the leak detection survey made on some 398 miles of pipe. This was the first year in which electrosonic devices were used intensively in the leak detection program.

Water Distribution Division plumbing inspectors made 2,875 first inspections during 1962; 3,394 reinspections; 2,407 wrecked building inspections; 30,700 building permit and service pipe inspections; 2,959 meter inspections, and 8,264 water contamination prevention inspections.

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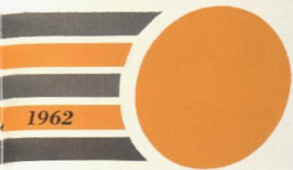
1953

progress . . .



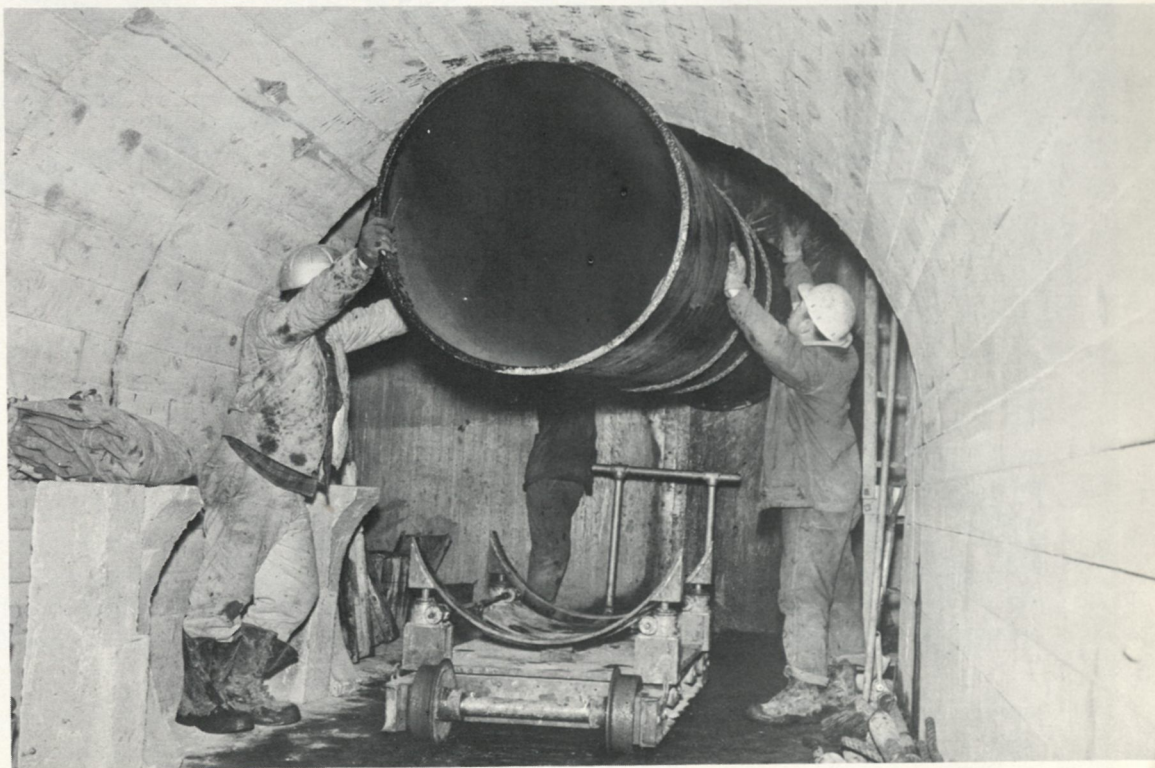
Chicago's early settlers bought water from peddlers by the bucket as they made daily trips through the City in their water carts.





Installation of 5-foot prestressed concrete pipe in Cicero Avenue from 67th Street to 71st Street completed one of discharge mains for Southwest Pumping Station.

Installation of 36-inch water main in the old underground freight tunnel from Rush and Illinois Streets, under the Chicago River, to Michigan Avenue at South Water Street.



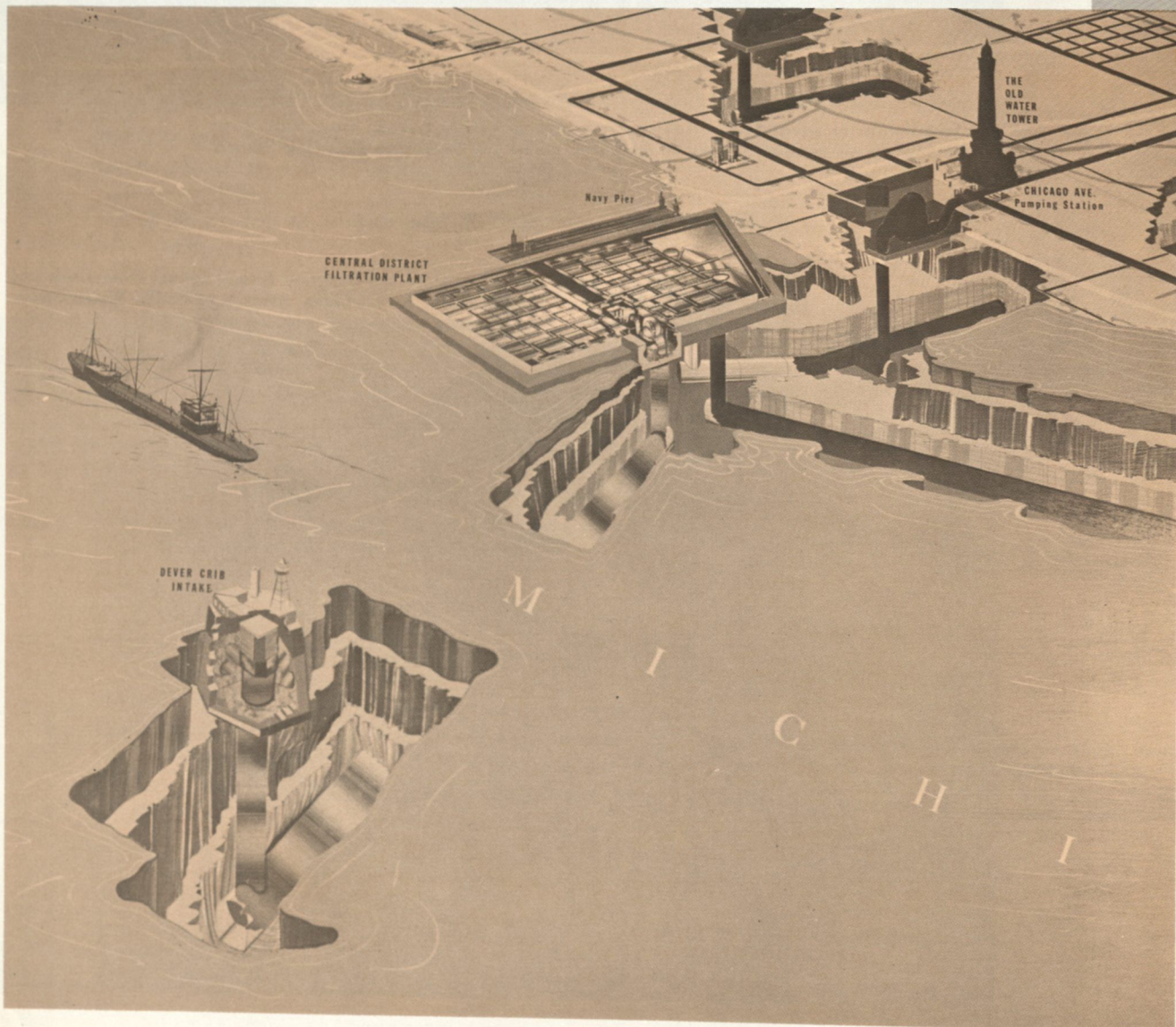


## THE WATER JOURNEY

The Chicago Water Works supplies an average of over one billion gallons of pure water every 24 hours of every day throughout the year to nearly four and one-half million people in a 390 square mile area for domestic, commercial and industrial use and for fire protection.

The water journey begins at the intake cribs. The four intake cribs are located in the Lake, two or three miles off shore in water 32 to 35 feet deep. Each crib is manned around the clock, seven days a week throughout the year, and has a navigation light to guide Lake traffic.

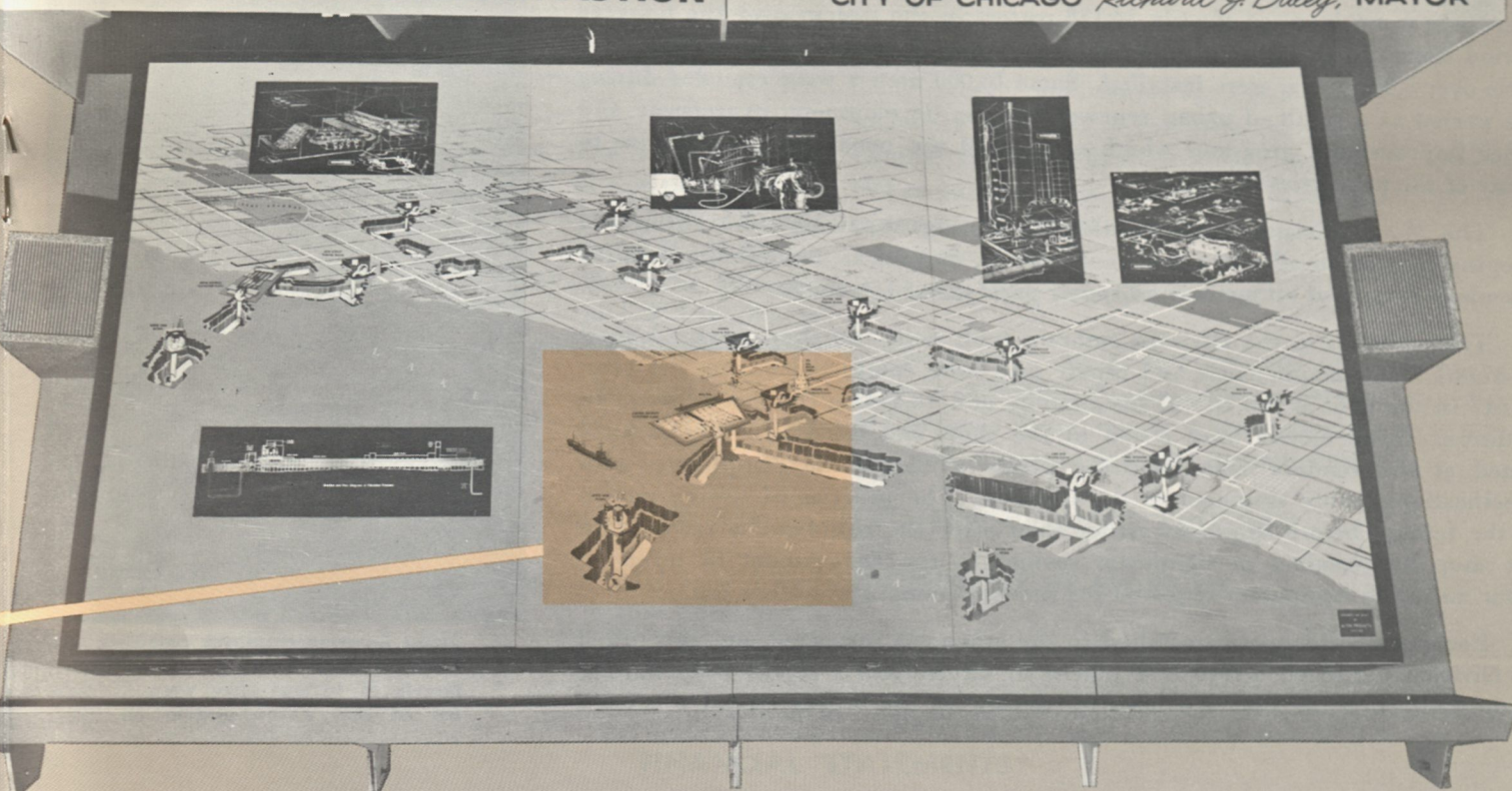
Lake water enters the crib through several ports near the bottom, then rises around the outside of the central shaft to a point where it passes through screens. It then goes down the inside of the shaft to large supply tunnels located from 50 to 200 feet below the surface of the Lake. These horseshoe and circular-shaped water tunnels vary in size from five to 20 feet in height and are lined with concrete for smoothness to reduce friction. In the early days the tunnels were built in clay, but since about 1910 they have been constructed in rock under the bed of the Lake and under the City.





# CHICAGO WATER SYSTEM IN ACTION

DEPARTMENT OF WATER AND SEWERS  
CITY OF CHICAGO *Richard J. Daley, MAYOR*



The water flows by gravity through the tunnels to large pumps at the filtration plants. At the filtration plant, the pumps raise the water to a height of some 20 feet above the Lake level to a point where it starts to flow by gravity through the water filtration process. It flows first through the chemical application channels, then through the coagulation and settling basins and finally through the rapid sand filters before entering the storage reservoirs. This processing in the filtration plant takes several hours. The safe, pure water then flows by gravity from the reservoirs through the large underground tunnels to the pumping stations located throughout the City.

There are three pumping stations serving the north area of the City: Lake View, Thomas Jefferson and Mayfair. Four serve the Central area: Chicago Avenue, Cermak, Springfield Avenue and Central Park Avenue, and three serve the south and southwest area: 68th Street, Roseland and Western Avenue. The new Southwest Pumping Station will go into service early in 1963.

The pumping station pumps lift the water from the supply tunnels and send it under 30 to 50 pounds pressure through the more than 4,000 miles of water

mains to homes, apartment buildings, stores, factories, and fire hydrants in the City and to 59 suburban communities surrounding Chicago.

The large water mains leading from the pumping stations are called feeder mains and vary in size from 24 to 60 inches in diameter. They are constructed of cast iron, prestressed concrete, or steel. The feeder mains supply the water to the service mains which vary in size from six to 16 inches. The service mains carry it to more than one-half million service connections.

A very vital use of water in any urban community is for fire fighting. Water in sufficient volume and adequate pressure is available around the clock to every one of more than 45,000 fire hydrants located throughout the City.

Large volumes of water are used by commerce and industry. It is an indispensable ingredient, for example, in the packing, steel and food processing industries.

Water's journey from the Lake to its final point of usage requires the careful operation of a very complex and widespread utility.



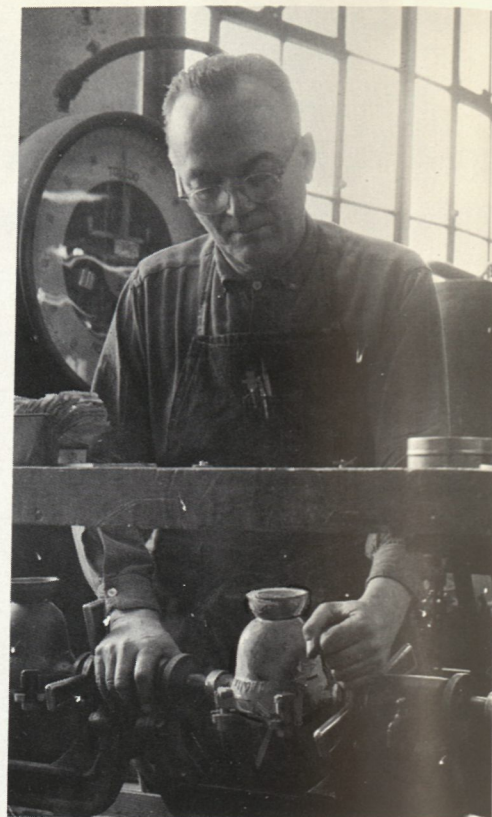
## METERS

A total of 5,921 water meters was installed in 1962, bringing to 157,084 the number of meters in service in the Water Works System at the end of the year. Ten years ago, at the end of 1952, there were 122,946 meters in service. While there was a net increase of only 34,138 meters in the system over the ten-year period since the Department was established, 50,210 meters or an average of a little over 5,000 a year were installed. Some 16,000 meters were removed during the period as a result of urban renewal housing development, expressway and other improvement programs which eliminated the need for water service to many of the properties involved.

The Meter Division is responsible for testing, repairing, controlling and keeping records on all water meters in service, as well as maintaining detailed inventory records of all meters and repair parts carried in stock.

The activities of the Division embrace both field and shop work. A total of 37,061 meter maintenance and repair jobs were completed during the year, 18,617 in the field at the site of installation, and 18,444 in the meter shop. In addition, 27,892 meters were tested in the shop and 6,385 new meters were tested at the vendors' manufacturing plants to determine compliance with specifications before shipment to the Division. The practice of testing meters at the factory before shipment rather than after the shipment is received in the shop has resulted in significant savings to the Department in terms of labor and shop equipment required for the inspecting and testing job.

Each new water meter installed in the system is inspected and controlled by Division personnel before it is placed in service and a report is forwarded to the Collection Division as a basis for setting up the billing record.



Meter Division employee repairing and testing a water meter. A total of 157,084 meters of various sizes were in service in the water system in 1962.

## ASSESSING, BILLING AND COLLECTING

During 1962, the Water Collection Division serviced 502,735 accounts, 345,651 assessed-rate accounts and 157,084 metered-rate accounts. Ten years ago, at the beginning of 1953, the year the Department of Water and Sewers was established, the Division serviced 453,695 accounts, 329,663 assessed-rate accounts and 124,062 metered-rate accounts.

Water Fund revenues amounted to \$57,187,945. The cash collections made by the Division during the year amounted to \$55,683,753. The difference in these two totals is made up of Water Fund income not specifically collected by the Division. Included in the total cash collections was \$12,120,797 for assessed-rate changes, \$43,256,264 for metered-rate changes and \$70,855 for sewer rental charges assessed against properties outside the corporate limits of the City. In 1953, the Division collected a total of \$30,741,191.

Many changes and improvements have been made in the assessing, billing and collecting operations of the Division during the ten-year period through 1962. The conversion of the billing operations from a manual system to a modern electronic machine system producing post-card bills ready for mailing, the revision of office layout to expedite work flow and provide easier access for customers paying bills in person, the improvements in meter reading and recording procedures and the improvements in office methodology during the last ten years all have played a vital part in increasing the level of services rendered to the public by the Division. As a result, there has been a significant betterment in the customer relations of the Division since the Department was established.

### Water bills — new and old.

Water bills — new and old.

**NEW BILL (1962)**

SECTION: ROOM: NUMBER: GROSS AMOUNT: DUE AFTER: CONTROL: GROSS AMOUNT: DUE AFTER:

DEPARTMENT OF WATER AND SEWERS - METERED RATES

ROOM: 101 - CITY HALL - CHICAGO 2, ILLINOIS

MAKE CHECKS PAYABLE TO BUREAU OF WATER

OFFICE HOURS 9 A.M. TO 4 P.M. SATURDAYS 9 A.M. TO 12 M.

THIS BILL CAN BE PAID AT AMERICAN EXPRESS AGENCIES (USUALLY AT FOOD-CHAIN, DRUG AND DEPARTMENT STORES)

PREVIOUS READING: PRESENT READING: NET AMOUNT:

ROOM: 101 - CITY HALL - CHICAGO 2, ILLINOIS

MAKE CHECKS PAYABLE TO BUREAU OF WATER

DEPARTMENT OF WATER AND SEWERS

GROSS AMOUNT: NET AMOUNT:

FROM: TO: SERVICE: AMOUNT NOW DUE: \$

**IMPORTANT!** If you wish to save the 10 per cent Discount on this bill you MUST PAY THE SAME in full when you receive this bill. The City makes its best attempt to deliver this bill. Non-receipt will not be considered as a reason why Discount should be allowed. In order to avoid DUPLICATE PAYMENTS please consult your landlord or tenant. Preserve and bring this bill with you. This bill can be paid at any of the offices of the United States and Pacific Express Co. by paying a fee of 5 cents for Chicago should be made payable to the order of the Superintendent of the Water Office.

5th DISTRICT. DEPARTMENT OF PUBLIC WORKS WATER SUPPLY.

Received the sum of \$100.00 being the semi-annual payment of the "Water Rates" assessed on the premises described below, for the use of water supplied by the City from the first day of MAY 94, 1962, to the first day of NOV 94, 1962.

It being hereby understood and agreed that if from any cause, or at any time, the supply of water should fail, no damage or rebate shall be claimed or allowed in any person or persons on account of such failure.

STREET: 435 S. Canal PART OF LOT: 104 SUBDIVISION OR ADDITION: None

By: [Signature] Cashier.

MAY 26 1964



## INVEST 28 MILLION DOLLARS IN WATER SYSTEM IMPROVEMENTS IN 1962

Each year, in cooperation with the Departments of Public Works and City Planning, the Department of Water and Sewers develops a water works capital improvement construction program for the coming five years.

During 1962, a total of more than \$28 million was invested in the improvement of plants and facilities of the Chicago Water System. This included \$8,097,609 for new water mains, \$3,116,600 for pumping stations and tunnels, and \$13,951,575 to increase filtration plant capacities.

For the five-year period 1963-1967, this program calls for the expenditure of \$73,010,000.

Proposed expenditures include \$2,636,000 for water tunnels and cribs; \$21,000,000 for filtration plants; \$13,460,000 for pumping stations; and \$35,914,000 for water main construction. Major specific outlays include \$13,000,000 to complete the huge Central District Filtration Plant; \$8,000,000 to expand by 50 percent the capacity of the South District Filtration Plant; and \$2,000,000 to construct a replacement for the Lake View Pumping Station.

The present capital improvement program is calibrated to increase the capacity of Chicago's Water System to meet population and industrial demands through 1980.

### FIVE-YEAR WATER WORKS CAPITAL IMPROVEMENTS PROGRAM

1963-1967 CALLS FOR THE EXPENDITURE OF \$73,010,000

## FINANCIAL STATEMENTS\* WATER WORKS FUNDS

### BALANCE SHEET As of December 31, 1962

ASSETS	
Utility Plant in Service.....	\$328,922,354
Less Reserve for Depreciation.....	54,428,842
	<u>\$274,493,512</u>
Work in Process.....	90,828,354
Net Fixed Assets.....	<u>\$365,321,866</u>
Equity in Working Capital Funds .....	9,627,044
Cash—Restricted for Capital Improvements..	658,839
Cash—Unrestricted .....	19,314,481
Accounts Receivable.....	3,333,019
Loan Receivable .....	628,282
Due from Corporate Fund .....	671,678
Other Current Assets.....	656,673
Total Assets .....	<u>\$400,211,882</u>

### LIABILITIES AND CITY EQUITY

City of Chicago Equity .....	\$233,557,436
Certificates of Indebtedness Outstanding....	159,800,000
Advances in Aid of Construction.....	552,266
Accounts Payable.....	5,195,915
Accrued Interest Payable.....	1,062,406
Other .....	43,859
Total Liabilities and Equity .....	<u>\$400,211,882</u>

### EXPENDITURES FOR CAPITAL IMPROVEMENTS Revenue and Water Certificate Funds Combined

Water Mains and Appurtenances.....	\$ 8,097,609
Central District Filtration Plant .....	13,692,707
South District Filtration Plant .....	258,966
Tunnels .....	1,458,892
Pumping Stations.....	1,229,138
Other .....	798,195
Interest Capitalized .....	2,799,920
	<u>\$ 28,335,427</u>

### INCOME STATEMENT Year Ending December 31, 1962

Revenues:	
Water Sales.....	\$ 55,816,605
Other Operating Revenues .....	811,217
Non-operating Income .....	560,123
Total Revenues .....	<u>\$ 57,187,945</u>
Expenses:	
Operating Expenses Excluding	
Depreciation .....	\$ 32,475,070
Depreciation .....	4,739,903
Interest on Certificates of Indebtedness†	2,892,236
Other .....	43,885
Total Expenses.....	<u>\$ 40,151,094</u>

Net Income for Year (Invested in	
Capital Improvements) .....	\$ 17,036,851
City of Chicago Equity—January 1.....	214,568,396
Increase in Revolving Fund Equity.....	758,356
Surplus Adjustments, Net .....	1,193,833
City of Chicago Equity—December 31 .....	<u>\$233,557,436</u>

\*The above statements represent a preliminary financial summary of the Water Fund. Final financial statements will be included in the City Comptroller's report for 1962.

†Net of interest charged to construction: \$2,799,920.





A back-hoe making an open cut which is being sheeted and braced prior to the construction of a large sewer.



Engineers inspect enormous 22-foot storm water outfall before it is accepted for service in the Public Sewer System.

## SEWERS

In 1854, there were only four and one-half miles of sewers underground in the City. In 1855, the Board of Sewerage Commissioners recommended that the City construct a system of intercepting sewers that would discharge into Lake Michigan. The first six miles of sewers were constructed under this program in 1856 and a little less than five miles were built in 1857. Today, sewers do not discharge into Lake Michigan.

In 1953, the Bureau of Sewers was responsible for some 3,575 miles of sewers in the underground Sewer System of Chicago, transporting sanitary and storm and surface drainage to intercepting sewers of the Metropolitan Sanitary District of Greater Chicago. In the ten-year period since 1953, over 429 miles of sewers of all sizes were constructed and added to the System, bringing to 3,926 miles the total length of pipe in the City's Sewer System at the end of 1962.

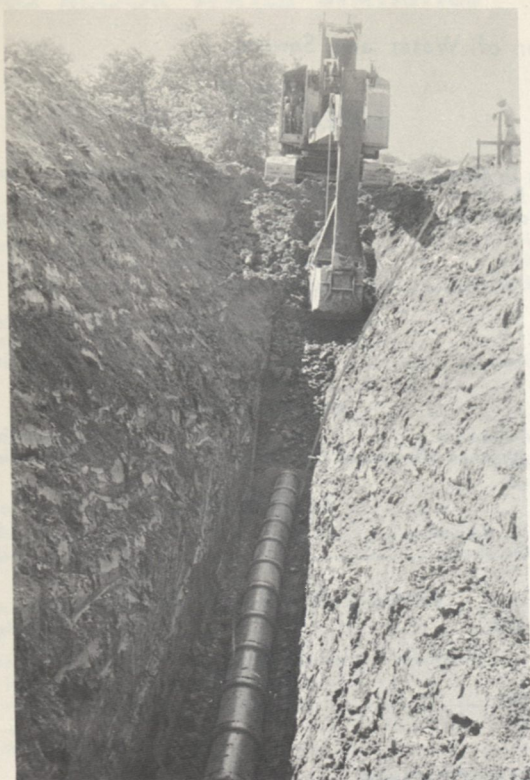
In 1962, 60 miles of new sewers, 3,194 catch basins and 2,023 manholes were added to the

public sewer system. About 15½ miles of the new sewers added were over 27 inches in diameter and about 44½ miles were 27 inches and smaller.

The radical changes that have occurred in the land-use patterns in Chicago in recent years have made mandatory continuous additions to and revisions of the Sewer System in order to reduce basement and underpass flooding in the various sections of the City. The great increase in impervious surface area has stepped up considerably the intensity of storm run off which has taxed the Sewer System, particularly those sewers built in the earlier years. In the last 10 years, however, considerable gains have been made in reducing basement and underpass flooding in Chicago.

Bureau engineers spent a significant amount of time in planning and consultation with engineers of other agencies in the development and design of plans to provide adequate drainage for new public improvements and the areas affected by them.





Excavating a trench and laying a sewer in 1962.



Building a manhole. In 1962, 2,023 manholes were constructed and added to the System.

The repair division of the Bureau completed 18,864 repair jobs during the year, 672 of which were repairs of main sewer breaks, 12,760 were catch basin repairs, 5,237 were manhole repairs and 195 were gutter grate and basin outlet repairs.

The cleaning division of the Bureau scraped some 5,781,000 feet of sewers and cleaned about 324,400 catch basins. In these cleaning operations approximately 95,000 cubic yards of dirt were removed from the System. The mechanization program instituted in the cleaning operations several years ago showed very beneficial results during 1962 in the form of higher workload accomplishment.

At the end of 1962, there were about 682,298 house drain connections to the public sewer system in Chicago. Bureau work forces made some 193,136 house drain and sewer pipe inspections and disposed of 21,546 complaints.

During the year, 201 street grades were established by Bureau survey crews and approved by the City Council. Fifty-four standard bench monuments and ordinary benches were established, and 14 standard bench monuments were constructed.

#### ADDITIONS TO SEWER SYSTEM 1953 THROUGH 1962 INCLUSIVE

YEAR	MILES OF SEWERS	MANHOLES	CATCH BASINS	COST
1953	18.01	642	1,067	\$ 6,387,520
1954	22.88	889	1,439	6,009,167
1955	26.10	1,004	1,654	4,231,881
1956	35.04	1,280	1,859	8,361,048
1957	34.74	1,245	1,591	7,239,581
1958	50.31	1,442	1,798	21,944,360
1959	49.09	1,679	2,334	14,404,273
1960	69.56	2,087	3,701	14,735,700
1961	63.63	1,936	2,306	13,849,627
1962	60.35	2,023	3,194	13,845,296
<b>TOTAL</b>	<b>429.71</b>	<b>14,227</b>	<b>20,943</b>	<b>\$111,008,453</b>



## DEPARTMENT OF WATER AND SEWERS

JAMES W. JARDINE.....Commissioner of Water and Sewers

### BUREAU OF WATER

Raymond D. Johnso.....Deputy Commissioner for Water  
W. W. DeBerard (Deceased 9-23-62).....Chief Water Engineer  
H. H. Gerstein.....Assistant Chief Water Engineer

#### PUMPING

J. L. Weeks.....Engineer of Water Pumping

#### PURIFICATION

J. R. Baylis.....Engineer of Water Purification

#### DISTRIBUTION

J. T. Garrity.....General Superintendent  
T. F. Foley.....Assistant General Superintendent  
E. Edelstein (Deceased 2-20-62).....Engineer  
W. R. Lemm (Appointed 5-1-62).....Engineer

#### METERING

M. I. Sheridan (Deceased 7-28-62).....Superintendent  
J. J. Gilleran.....Assistant Superintendent

#### COLLECTION

Edward A. Nihill.....Superintendent

### BUREAU OF SEWERS

Thomas D. Garry.....Deputy Commissioner for Sewers  
Arthur E. Cook (Deceased 4-16-62).....Administrative Assistant  
A. J. Schafmayer.....Chief Engineer

#### INSPECTION

Edward W. Hallauer (Appointed 7-16-62).....Assistant Chief Engineer

#### DISTRICT CLEANING

John Kilroe.....Superintendent

#### CONSTRUCTION

Ralph McNamara.....Superintendent  
Vincent Shannon (Deceased 6-14-62).....Superintendent

#### ENGINEERING

Charles E. Benson.....Engineer  
David Goldberg.....Engineer

#### ARTERIAL REPAIR AND CLEANING

Edward Gill.....Superintendent

## ADMINISTRATION AND FUNCTIONS

The Department of Water and Sewers is divided into two major units—the Bureau of Water and the Bureau of Sewers.

The Bureau of Water provides water to all of Chicago and 59 suburbs, and bills and collects water charges for this service. The Bureau is composed of a Pumping Station Operation Division which operates 4 water intake cribs and 10 pumping stations to pump the water into the system; the Water Purification Division, which operates the water filtration plant and supervises treatment of the water to insure its safety and palatability; the Water Distribution Division, which plans, constructs and maintains the distribution system to transport the water from the pumping stations to the user; the Meter Division, which operates the water meter repair shop and maintains and checks the accuracy of the

meters that measure the amount of water used by the consumers, and the Collection Division, which reads the meters, bills, collects and accounts for water charges.

The Bureau of Sewers operates and maintains Chicago's vast public sewer system. The Bureau is composed of an Engineering Division that plans and designs sewer repairs and extensions; a Cleaning Division that flushes and scrapes sewers and cleans catch basins on a district basis; a Repair Division that makes repairs to the sewer system on a district basis; a Motor Fuel Tax Division, that does both repair and cleaning work on arterial highway sewers, and an Inspection Division that supervises sewer construction and installation of connections.

## 1962 MAJOR SEWER STATISTICS

### Existing Sewer System:

Miles of Sewers.....	3,925.65
Catch Basins.....	204,806
Manholes.....	140,770

### 1962 New Sewer Construction:

Miles of Sewers—all sizes.....	60.35
Catch Basins.....	3,194
Manholes.....	2,023

Inspections.....	193,136
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Complaints Handled.....	21,546
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### Repairs:

Total Number of Sewer System Repair Jobs Completed.....	18,864
Main Sewer Breaks.....	672
Catch Basins.....	12,760
Manholes.....	5,237
Gutter Grates and Basin Outlets.....	195

### Cleaning:

Dirt Removed in Cleaning Operations—Cubic Yards.....	94,338
Sewers Scraped—Feet.....	5,780,844
Catch Basins Cleaned.....	324,402

### Street Grades Established and Approved by City Council

201

### Standard Bench Monuments and Ordinary Benches Established

54

### Standard Bench Monuments Constructed

14

### Receipts:

House Drain Permit Fees.....	\$ 149,600
Other Permit Fees.....	38,737
Special Deposits.....	75,866
Out-of-town Sewer Connection Fees.....	70,032
Drain Layers' License Fees.....	41,625
Total Receipts.....	\$ 375,860



# 1962 MAJOR WATER STATISTICS

## Population and Area Served

(Based on reliable estimates)

Population supplied:

Chicago (1960 U.S. Census 3,550,404)	3,534,000
Suburban (Year-end census as revised)	929,000
Total	4,463,000

Area served (in square miles):

Chicago	226
Fifty-nine suburbs	164
Total	390

## Per Capita Consumption

	Gallons Per Day
Chicago	261
Suburban	138
Average	235

## Chemical and Physical

### Qualities of Water

Total hardness (as parts per million Calcium Carbonate)	132
Water temperatures: Intake (Dever Crib)	
Average	49.0°F.
Maximum	70.0°F.
Minimum	32.0°F.

## Pumpage

	Gallons
Annual	
Chicago	336,662,000,000
Suburban communities and industries (metered)	46,833,000,000
Total*	383,495,000,000

\*(Amount through

Western Ave. Reservoir ..... 1,166,000,000)

### Annual Metered Consumption

in Chicago (46.8† of Chicago pumpage)..... 157,643,000,000

†(Percentage of Revenue  
from Metered rates 78.11%)

### Daily

Total daily average	1,050,670,000
Maximum day, Aug. 23	1,497,250,000
Maximum hour (rate) Aug. 24, 3 P.M.	1,878,000,000
Daily Average—Chicago	922,360,000
Daily Average—Suburban	128,310,000

## Purity Control

Laboratory samples examined:

Bacteriological Laboratory	43,535
Chemical Laboratory	168,731
Microscopically for plankton	7,639
Electron Microscope	5,542
Total samples examined	225,447

## Bacteriological Results

Annual average coliform organisms per 100 ml\*

	South District (filtered)	North & Central District (chlorinated only)
Raw	69.50	116.40
Plant outlet	0.001	
Pumping stations	0.002	0.13
Distribution system	0.03	0.07

\*(U. S. Public Health Service Standard for  
safe drinking water permits a maximum av-  
erage of 1.0 coliform organisms per 100 ml.)

## Purification Treatment

	Gallons
Complete Filtration Treatment	132,995,300,000
Chlorination Treatment only	251,853,290,000

## Chemicals Applied—Tons

	Filtration Treatment	Chlorination Only
Chlorine	1,292	1,434
Aluminum Sulfate (as Al)	407	
Activated Carbon	1,433	
Lime	2,005	
Ferrous Sulfate (as Fe)	657	
Anhydrous Ammonia	104	
Sodium Silicate	19	
Hydrofluosilicic Acid (23%)	2,520	4,300
(As Fluorine)	459	783

## Supply

Crib intakes in service	4
Emergency shore intake	2
Miles of water supply tunnels under lake and land (6 to 16 feet in diameter)	71.3

## Pumping

Pumping stations	10
Pumps available for service	51
Installed pumping capacity (Million gallons per day)	2,855

## Annual Pumpage

	Million Gallons
By electrically driven pumps	135,191
By steam driven pumps	248,304
Total annual pumpage	383,495
Coal used by steam powered pumps (tons)	143,609
Electric power used by electrically powered pumps. (kilowatt hrs.)	67,140,540

## Distribution

Water Mains: (in miles)	
In use—December 31, 1962	4,041.39
Extended	33.12
Abandoned	19.37
Net addition to system	13.75
Diameter of pipe (inches)	4 to 60

### Fire Hydrants:

In use—December 31, 1962	45,237
Installed	648
Abandoned	508
Net Increase	140

### Gate Valves:

In use—December 31, 1962	41,158
Installed	630
Abandoned	387
Net Increase	243

Pressure range in mains (lb. per square inch)..... 22-55

Average pressure at curb (lb. per square inch)..... 40

Miles of pipe tested for underground leakage ..... 398.02

Underground main leakage stopped 1962

gallons per day	15,010,000
Premises inspected—house to house leakage survey	4,043
Repaired main breaks—4 inch to 36 inch in diameter	218

Note: All figures adjusted to conform to  
inventory made during 1961-62, in-  
cluding revisions made subsequently.

## Meters:

In service—December 31, 1962	157,084
Installed by master plumbers	1,572
Installed by Water Distribution Division	4,349
Total	5,921
Removed	2,923
Net increase	2,998
Repaired on premises	18,617
Repaired in shops	18,444
Tested	27,892
Non-metered (assessed rate) services	345,651
Total Services (assessed & metered)	502,735

Supplements covering complete 1962 water  
or sewer statistics are available upon request.



## TOP HONORS

John R. Baylis, Engineer of Water Purification for the Department of Water and Sewers, was awarded the John M. Diven medal by the American Water Works Association in 1962. The award is made each year to the member rendering the most outstanding service.

Oscar Gullans, Assistant Engineer of Water Purification for the Department, received the George Warren Fuller Award for distinguished service in the water supply field for the same year.

## HIGHLIGHTS IN A DECADE OF PROGRESS

Ten years ago, on January 1, 1953, the Water Works and Sewer Systems were transferred from the Department of Public Works to the newly-established executive Department in City government, the Department of Water and Sewers. In the ten years since 1953, great strides have been made in expanding the two Systems and improving their operations. Following are some of the highlights which to some extent measure this progress:

- ◆ For the first time in Chicago's history, the National Board of Fire Underwriters rated the Chicago Water Works System in Class I, the highest classification awarded by the Board. The rating measures the adequacy and reliability of water service furnished by the Water Works System.
- ◆ A total of over \$205 million was invested in the Water Works System and \$111 million in the Sewer System. The Five-year Water Works Capital Improvement Program, 1963-1967, calls for the investment of an additional \$73 million.
- ◆ Capacity of the pumping stations was increased from 2560 million gallons a day to 2855 million gallons a day. During the period, 20 of the 51 pumps and 15 of the 24 boilers in these stations were replaced. Construction of the new Southwest Pumping Station, which will add another 175 million gallons a day pumping capacity, was completed and it will be placed in operation early in 1963.
- ◆ In 1956, the City began fluoridating its water supply to all users.

Lowering a section of water main into place.



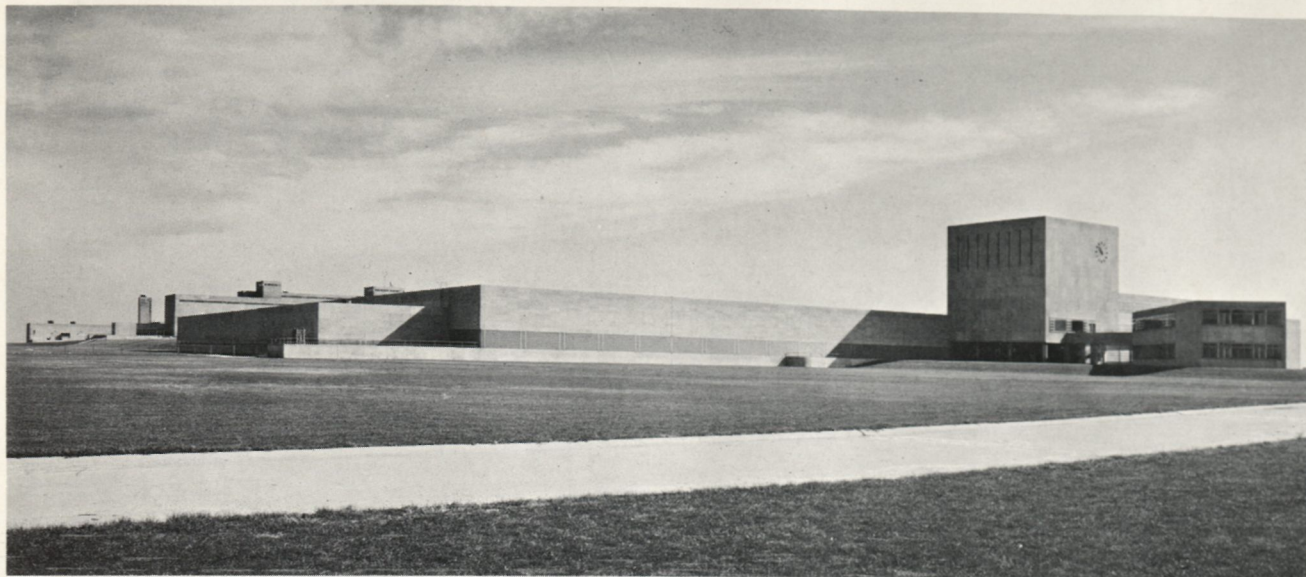
- ◆ Three new water tunnels, the North Shore, the 79th Street and the Columbus Avenue were constructed and placed in service.
- ◆ A 30 million gallon water reservoir was constructed and placed in service adding 75 million gallons a day to the supply capacity of the Roseland and Western Avenue Pumping Stations.
- ◆ Three hundred and twenty-eight miles of new water mains of various sizes were added to the distribution system, 110 miles of which were feed mains ranging in size from 16 to 60 inches in diameter. The System has been fortified in all areas of the City and in 1962 there was a total of 4,041 miles of pipe in the distribution system.
- ◆ Four hundred twenty-nine miles of sewers of all sizes, 14,227 manholes and 20,943 catch basins were added to the public sewer system. Sewer system improvements have significantly reduced basement and underpass flooding in all areas of the City.
- ◆ The number of suburbs served increased from 48 to 59.



Section of a 7½-foot sewer is lowered into place.

- ◆ Billing and collection operations were converted from a manual system to a modern electronic machine system producing post-card bills ready for mailing.
- ◆ In 1954, one of the world's most powerful electron microscopes was installed at the South District Filtration Plant to be used in the detection of bacteria in water and for general research.
- ◆ In 1955, new recording monitors were installed at the South District Filtration Plant Laboratory to detect radioactivity in water.
- ◆ In 1954, a Department-wide employees safety program was inaugurated. The value of this program has been proven year after year in the major reduction of man-hours lost due to accidents and in the reduction of human discomfort and hurt. The safety honors awarded to the Department by the National Safety Council and the American Water Works Association year after year attest to the accomplishments of the program.





**SOUTH DISTRICT FILTRATION PLANT**—This plant is one of the largest in the world and provides pure filtered water to serve one and one-half million people in the south and southwest sections of Chicago and adjacent suburbs. It has a peak capacity of 600 million gallons a day and serves an area of 162 square miles. At present, it filters the water to three pumping stations—68th Street, Roseland and Western Avenue, and will soon supply the new Southwest station. A total of about \$8,000,000 is included in the current Five-year Water Works Capital Improvement Program to expand the plant capacity by 50 percent.

**CENTRAL DISTRICT FILTRATION PLANT**—This plant, located near Navy Pier, is one of the largest municipal projects under construction in the world. It will supply pure filtered water to three million residents in the north and west sections of Chicago and about 30 nearby suburbs. It has a huge 68 million gallon filtered water reservoir and occupies 61 acres of made land. It will have a peak capacity of 1700 million gallons a day and when completed it will be the world's largest filtration plant.





